

**REMARKS:**

Claims 1-6 are in the case and presented for consideration.

Revival of this application is respectfully requested in view of the attached Petition and fee authorization.

The title has been changed and the correct patent number that was issued on the parent application, has been added to the specification as required by the Examiner.

The Examiner has requested a change in status of this application to a CIP since he considers that there is new matter in the present divisional application with respect to the parent application (granted as US 6,743,336 B1). In particular, in US 6,743,336 B1 (column 5, lines 1-8 and 17-18; and column 9, lines 13-15) the granulometric distribution lies between 50 and 150 m; while in the divisional application (page 9, lines 19-26; page 10, lines 1-2; and page 17, lines 33-35) the granulometric distribution lies between 50 and 150  $\mu\text{m}$ .

Please note that the correct text is that of the divisional application in which the granulometry (grain size distribution) is expressed in micrometers (" $\mu\text{m}$ ") and not in meters (" $\text{m}$ "), according to the originally filed Spanish text of the corresponding international patent application PCT/ES99/00242, of which the subject application is a continuing application of its parent which in turn was a section 371 application and thus incorporates its subject matter. See corresponding publication number WO 00/8250, page 9, lines 9, 11-12 and 24, and page 17, lines 14-15 which are attached as **EXHIBIT A**.

As can be seen, this is a clear typing error made during the translation of the

originally filed text of PCT/ES99/00242 from Spanish into English and no new matter has been added by conforming the English text to the Spanish text. Effectively, as stated in US 6,743,336 B1 (column 5, lines 4, 7 and 18), magnesium is used in the form of powder. Therefore, as the Examiner himself had observed in his rejection of claim 5, it is not possible to have a powder with a grain size lying between 5 and 150 meters. This error thus can be considered to be an obvious clerical error which does not constitute new matter and in any case was correct in the PCT application that forms the basis of this section 371 (PCT National Phase) application. This application is therefore properly a divisional and not a CIP.

The Examiner has also rejected claims under 35 U.S.C. 112 second paragraph.

Claim 5 has been objected to for containing subject-matter (granulometric distribution lying between 50 and 150 m) which is not described in the specification (granulometric distribution lying between 50 and 150  $\mu\text{m}$ ). Claim 5 has been corrected in this regard and no new matter has been added as noted above.

In claim 3, the expression "at a boiling point temperature" has been amended to read "at a temperature corresponding to the boiling point of the reaction mixture" as supported in the specification at page 9, lines 6-11, and example 1.3, pages 14-15, where anhydrous n-propanol, magnesium metal in the form of a strip suitably prepared and iodine are mixed and then heated to boiling.

In claim 5 the expression "and cooling said reaction mixture to a boiling point temperature when hydrogen is released" has been amended to read "gently heating said reaction mixture until hydrogen begins to be released, and then cooling said reaction mixture to a temperature corresponding to the boiling point of it" as supported in

specification at page 9, lines 28-35, and example 2.1, pages 17-18, where anhydrous n-propanol, magnesium metal in powder form and iodine are mixed and then heated gently until hydrogen begins to be given off and from then on, as the reaction is strongly exothermic, cooled to the boiling point of this reaction mixture in order to control the rate of reaction at a gentle boiling.

In claim 4 the expression "at a reflux temperature and adding toluene" has been amended to read "at the reflux temperature of the reaction mixture and subsequently adding toluene" as supported in specification at page 9, lines 11-17, and example 1.4, pages 15-16, where anhydrous n-propanol, magnesium metal in the form of a strip suitably prepared and iodine are mixed, boiled under reflux and then toluene is added to this reaction mixture.

Although not rejected, claim 6 has been amended so that the chemical composition of the invention can be applied by means of a system of de-acidification in bulk or by spraying (see claim 10 of the originally filed set of claims of the parent US patent and claim 10 of WO 00/8250, in Spanish "desacidificación en masa").

The application and claims are now believed to be in proper form.

Claims 1, 2 and 6 have been rejected as being obvious under 35 U.S.C. 103 over Smith'856 (US 6,676,856) or Worsfold (CA 2,142,195) in view of Smith'685 (US 4,860,685).

Smith'856 discloses a method for obtaining a chemical composition for de-acidification of cellulosic materials comprising: (a) blending a metal or an organic metallic alkoxide (metal ethoxide, as stated in column 6, line 15) with an ultradry solvent (an ultradry C1-C4 alcohol, among others) and carbon dioxide to form an organic metal

carbonate composition; (b) subjecting this composition to a magnetic separation and then to a filtration for obtaining a concentrate; and (c) diluting this concentrate with an ultradry solvent (an HFC, among others), as stated in claim 9 and figure 1. The metal can be magnesium, among others, and the organic metallic alkoxide can be a magnesium alkoxide. However, the only magnesium alkoxide cited is that of examples 4 and 5 (magnesium ethoxide), which is used for preparing a composition of MMMC (methoxy magnesium methyl carbonate) or a composition of PMPC (isopropoxy magnesium isopropyl carbonate). The methods for de-acidification of cellulose-type material of examples 9-29, illustrate the use of MMMC, PMPC and PZPC (isopropoxy zinc isopropyl carbonate).

Worsfold discloses a method for obtaining a chemical composition for de-acidification of cellulosic materials comprising: (a) refluxing magnesium metal in methanol to give a suspension of magnesium methoxide in methanol; (b) cooling this suspension; and (c) saturated it with carbon dioxide to form a solution of methoxymagnesium methylcarbonate in methanol (lines 24-33 of page 5). Alternatively, methoxymagnesium methylcarbonate and ethoxymagnesium ethylcarbonate can be produced by a method comprising: (a) reacting magnesium metal with methanol or ethanol to produce a solution of magnesium methoxide or magnesium ethoxide; (b) drying this solution to form a dried powder of magnesium methoxide or magnesium ethoxide; (c) adding to this powder methanol or ethanol in the presence of carbon dioxide to form a solution of methoxymagnesium methylcarbonate or ethoxymagnesium ethylcarbonate (paragraph bridging pages 5 and 6). No examples illustrating the preparation of a particular composition or the application of a particular composition are included in Worsfold.

Smith'685 discloses a deacidification solution comprising a deacidification agent, a lower alcohol solvent for this agent, a diluent and a propellant. The only reference to the preparation of this deacidification solution is included in example 1 where methoxymagnesium methylcarbonate is prepared by dissolving magnesium ethoxide in anhydrous methanol in the presence of carbon dioxide gas and then adding a CFC diluent and a propellant. The methods for de-acidification of cellulose-type material of examples 1-9, only illustrate the use of methoxy magnesium methyl carbonate.

Even if Worsfold and Smith'685 mention that other carbonated magnesium alkoxides could be used and prepared in a similar way, neither one illustrates the preparation of a suspension of di-n-propylate in n-propanol with yields as high as those achieved by the method of the invention (90-92%, 90%, and 90-92% as showed in examples 1.3, 1.4 and 2.1, respectively). Similarly, no one of them illustrates the preparation of a solution carbonated magnesium di-n-propylate in n-propanol with a concentration as high as 30-70% by weight (54% and 40%, as showed in examples 1.5 and 2.2).

Moreover, in Smith'856 (the latest filed application of the three references) the isopropoxy magnesium isopropyl carbonate (PMPC) and the methoxy magnesium methyl carbonate (MMMC) are prepared from magnesium ethoxide and methanol or isopropanol, respectively; and in Smith'685 (the first filed application of the references) the methoxy magnesium methyl carbonate (MMMC) is also prepared from magnesium ethoxide and methanol. Hence, the person of ordinary skill in the art, in view of Smith'856 or Smith'685 would have tried to prepare the propoxy magnesium propyl carbonate from ethoxy magnesium and n-propanol.

There is thus a prejudice in the prior art concerning the preparation of the composition of the present application (comprising carbonated magnesium di-n-propylate in n-propanol, i.e. propoxy magnesium propyl carbonate) intended for de-acidification of cellulosic materials. Accordingly claims 1, 2 and 6 are believed to be patentable over the combination of Smith'856 or Worsfold in view of Smith'685

Claims 2-5 are also rejected for being obvious over Smith'856 or over Worsfold in view of Smith'685 or over Bell (US 3,706,665) in view of Sullivan (US 2,265,220).

Bell discloses the preparation of carbonated magnesium alkoxides by a method comprising (a) reacting magnesium metal with excess alkanol to form a solution of magnesium alkoxide in alkanol; (b) optionally adding a liquid hydrocarbon such as toluene, inter alia; and (c) passing or dissolving carbon dioxide in this solution.

Even if Bell mentions that other carbonated magnesium alkoxides could be prepared in a similar way, it does not illustrate the preparation of a suspension of di-n-propylate in n-propanol, or the preparation of a solution of 30-70% carbonated magnesium di-n-propylate in n-propanol. In fact, in examples 1-4 of Bell (filed before Smith'856, Worsfold or Smith'685) the preparation of methoxy magnesium methyl carbonate (MMMC) is only illustrated.

Sullivan merely discloses a process for recovering toluene from mixtures containing non-aromatic hydrocarbons (propanols, among others).

Therefore, taking into account that none of Smith'856 or Worsfold or Smith'685 or Bell over more than 25 years explicitly illustrates the preparation of a solution with more than 30% by weight of carbonated magnesium propoxide in n-propanol, it is strongly believed that there was a prejudice in the prior art concerning the preparation of the de-

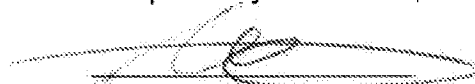
acidification composition of the present application (comprising carbonated magnesium di-n-propylate in n-propanol) with a concentration as high as 30-70% (w/w) and therefore, claims 2-5 are not obvious to the person of ordinary skill in the art.

In conclusion, the use of carbonated magnesium propoxide / n-propanol system has not been yet explicitly disclosed in literature due to the mentioned prejudice existing in the art based on the difficulty for synthesizing carbonated magnesium propoxide in the appropriate amount to be used, or at least tested in the laboratory, in the field of the heritage conservation. The preparation of carbonated magnesium di-n-propylate solved in propanol in concentrations higher than 30%, in absence of other compounds in suspension such as magnesium metal and/or other non-carbonated alkoxides, has not been achieved until now.

Accordingly, the application and claims are believed to be in condition for allowance, and favorable action is respectfully requested.

If any issues remain which may be resolved by telephone, the Examiner is respectfully invited to contact the undersigned at the number below, to advance the application to allowance.

Respectfully submitted,



Peter C. Michalos  
Reg. No. 28,643  
Attorney for Applicants  
Tele. 845-359-7700

Dated: March 16, 2007  
**NOTARO & MICHALOS P.C.**  
100 Dutch Hill Road, Suite 110  
Orangeburg, New York 10962-2100  
**Customer No. 21706**